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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,523	11/14/2003	Liang-Sheng Liao	87103RLO	9953

7590 12/22/2005

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EXAMINER
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HINES, ANNE M

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 12/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/713,523	LIAO ET AL.	
	Examiner	Art Unit	
	Anne M. Hines	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 November 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,6-9,18,20-22,27-30,39,41 and 42 is/are rejected.
- 7) ☒ Claim(s) 2-5,10-17,19,23-26,31-38 and 40 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response***

The response filed on November 7, 2005, has been acknowledged and considered by the Examiner.

Claims 1-42 are pending in the instant application.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 6-9, 18, 22, 27-30, and 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Boroson et al. (US Pat. No. 6,824,950).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 1, Boroson discloses an anode (Fig. 2, 20; Column 6, line 30); a hole transporting layer disposed over the anode (Fig. 2, 24; Column 6, lines 29-32); a light emitting layer disposed over the hole transporting layer for producing light in response to hole-electron recombination, wherein the light emitting layer includes at least one organic host material and one organic luminescent dopant material (Fig. 2, 26; Column 6, lines 29-32; Column 6, lines 41-50); a stability enhancing layer disposed in contact with the light emitting layer (Fig. 2, 32; Column 14, lines 17-21), wherein the stability enhancing layer includes at least one organic host material and one inorganic dopant material (Column 14, lines 23-34); an electron transporting layer disposed over the stability enhancing layer (Fig. 2, 28; Column 14, line 18); and a cathode disposed over the electron transporting layer (Fig. 2, 30; Column 15, lines 47-49).

Regarding claim 22, Boroson discloses an anode (Fig. 2, 20; Column 6, line 30); a hole transporting layer disposed over the anode (Fig. 2, 24; Column 6, lines 29-32); a light emitting layer disposed over the hole transporting layer for producing light in response to hole-electron recombination, wherein the light emitting layer includes at least one organic host material and one organic luminescent dopant material (Fig. 2, 26; Column 6, lines 29-32; Column 6, lines 41-50); a stability enhancing layer disposed in contact with the light emitting layer (Fig. 2, 32; Column 14, lines 17-21), wherein the stability enhancing layer includes at least one organic host material and one inorganic dopant material (Column 14, lines 23-34); an electron transporting layer disposed over the stability enhancing layer wherein the electron transport layer includes host material or dopant material or dopant concentration that are different than the host material or

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dopant material or dopant concentration in the stability enhancing layer (Fig. 2, 28; Column 14, line 18); and a cathode disposed over the electron transporting layer (Fig. 2, 30; Column 15, lines 47-49).

Regarding claims 6-9 and 27-30, Boroson further discloses wherein the inorganic dopant material in the stability enhancing layer is lithium (Column 14, lines 23-25), which is an alkali metal with a work function lower than 4.0 eV.

Regarding claims 18 and 39, Boroson further discloses wherein the stability enhancing layer is 2nm (Column 14, lines 35-37).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20-21, and 41-42 are rejected under 35 U.S.C. 103(a) as being obvious over Boroson et al. (US Pat. No. 6,824,950).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject

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matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Regarding claims 20-21 and 41-42, Boroson fails to disclose the limitation wherein the thickness of the light emitting layer is between 5nm and 45nm (claims 20 & 41) and further between 5nm and 30nm (claims 21 & 42). One skilled in the art would reasonably contemplate optimization of the thickness of the light emitting layer as a matter of design engineering in order to achieve the desired light emitting intensity. Furthermore, applicants claimed thickness does not solve any of the stated problems or yield any unexpected result that is not within the scope of the teaching applied. Therefore, it would have been obvious to one of ordinary skill in the art to modify the invention of Boroson by modifying the thickness of the light emitting layer to be within the claimed ranges of thicknesses in order to achieve the desired light emitting intensity.

***Allowable Subject Matter***

Claims 2-5, 10-17, 19, 23-26, 31-38, and 40 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

Applicant's arguments with respect to claims 1-42 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne M. Hines whose telephone number is (571) 272-2285. The examiner can normally be reached on Monday through Friday from 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anne M Hines  
Patent Examiner  
Art Unit 2879

*Amt*  
12/14/05

*Msy 12/15/05*  
**MARICELI SANTIAGO**  
**PRIMARY EXAMINER**